

to the beach has brought about conditions unfavourable to the maintenance of the stock of toheroa on the beach. There are several lakes, lagoons, and swamps in this district which are the sources of the fresh water which finds its way to the beach either by way of the numerous small creeks or as a seepage through the back shore. It was brought to my notice by several local informants that these bodies of water had been diminishing in volume steadily during the last two years, and were at that time lower than they had been for many years. It was also apparent during my inspection that the northern area contained a larger proportion of beach that was lacking in fresh-water drainage than was the case in the southern half of the area where the toheroas were abundant. My attention was also drawn to the existence of a recently formed ridge of sandhills which may also have affected the extent to which seepage took place from the land at the back of the beach. It is desirable that more comprehensive observations should be made on these environmental factors and on the condition and occurrence of toheroa. It may be stated, as a general fact, that the occurrence of toheroa-beds is invariably associated with the existence of a supply of fresh water to the beach and it would appear that this factor is essential to the continuous well-being of this species.

As the result of this survey I came to the conclusion that the total stock of toheroas of commercial size (over 3 in.) on this thirty-mile length of beach amounted to not less than eleven million and a half and not very much more than twelve million.

In some parts of the beach sampled toheroa were so crowded that odd individuals could not get down to their usual position of 6 in. to 12 in. below the surface when the sand was left bare by the receding tide, but remained half out of the sand. On one such spot 372 toheroa were dug from one square yard of beach, 224 of these being over 3 in. in length. The precise cause of overcrowding in one portion of the beach while a few hundred yards away the sand is devoid of toheroa is a problem that remains to be elucidated.

With regard to the toheroa-beds on the North Kaipara beach, there is at present a great dearth of toheroas in those parts of the beach adjacent to the roads, but at the southern end where the areas are leased for canning the beds are very densely stocked and appear to carry a younger (though not smaller-sized) population than is the case on the Ninety-mile Beach.

The toheroa-beds between Paraparaumu and the Manawatu Heads are, generally speaking, well stocked, though the beds are neither so numerous nor so densely populated as those of the Auckland beaches. Reference has already been made to the fact that the stock appears to consist almost entirely of full-sized individuals, the younger year groups being very little in evidence. It is possible, therefore, that the future may see a considerable reduction in the toheroa stocks of these beds, a condition which has been known to hold in previous years.

The whole question of the distribution and general biology of this potentially very valuable species of mollusc deserves more attention than has hitherto been given to it.

WHITEBAIT.

The main facts relating to the 1932 whitebait season, collated from the returns made by local inspectors, are shown in the following statement:—

Whitebait Fishery.

Inspector's Centre.	Rivers fished.	Method of Fishing.	Fishing began	Best Month.	Number of Fishermen. (Approximate.)		Total Quantity caught. (Approximate.)
					Whole Time.	Part Time.	
			1932.				Cwt.
Auckland ..	Lower Waikato ..	Hand-net ..	3rd June	September ..	90	50	514
Napier ..	Tukituki, Ngaruroro, Wairoa, Mohaka, Waikare	Hand and set nets	July ..	August, September	40	20	56
New Plymouth	Urenui, Mokau, Waitara, Waiwakaiho, Mimi, and most of the other streams	Hand and set nets	August ..	October ..	(?)	100	100
Foxton ..	Manawatu ..	Set-nets ..	June ..	October ..	4	20	26
Blenheim ..	Wairau, Opawa, Taumarina, Spring Creek	(?)	End August	October ..	(?)	12	12
Karamea ..	Karamea, Little Wanganui	Hand-nets ..	August ..	October ..	(?)	20	25
Westport ..	Buller, Orawaiti ..	Hand-nets ..	August ..	October ..	10	70	862
Greymouth ..	Grey, Teremakau ..	Hand and set nets	August ..	November ..	26	200	555
Hokitika ..	Hokitika, Mahinapua, Totara, Arahura, Waitaha, Mihinui	Hand and set nets (trenches)	August ..	October–November	(?)	172	1,570
Matainui, South Westland	Big Wanganui, Pocerua, Wataroa, Okuru, Haast, Maori, Jacobs River	Set and hand nets	End of July	August–September	24	10	483
Christchurch	Ashley, Waimakariri, Styx, Avon, Saltwater Creek, Heathcote	Hand and set nets	August ..	October ..	20	128	48
Dunedin ..	Taieri, Clutha, Shag, Waikouaiti	Hand-nets ..	September	October ..	(?)	..	456
Invercargill ..	Mataura, Orceti, Aparima	Hand-nets ..	15th September	October ..	(?)	100	41
Totals	208	902	4,748